DOCUMENT RESUME

ED 052 065 SE 012 090

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TITLE The Curriculum Never Changes - Only the Reason for Offering It Changes.
PUB DATE Feb 71
NOTE 21p.; Paper presented at the American Educational Research Association Meeting, New York, New York, February 1971

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS *College Curriculum, Colleges, Curriculum, Curriculum Development, *Educational Change, *Educational Needs, Educational Opportunities, Higher Education, *Relevance (Education), Science Education

ABSTRACT

This paper presents arguments supporting major curriculum reforms in American colleges and universities. These reforms would create new options to the traditional patterns of education now being imposed on most students. The author suggests "that this reform should follow much more closely the American land grant college tradition than either the liberal arts tradition or the graduate research and scholarship tradition." The curriculum changes recommended by the Carnegie Commission are summarized and supported with certain modest extensions. It is not recommended that the traditional programs be abolished, but that no one program or combination of any two should be allowed to dominate the educational scene. Problem-oriented courses dealing with the physical, biological, and social environment should be given high priority. (PR)

ED052065

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NEW YORK, NEW YORK
FEBRUARY 6, 1971

THE CURRICULUM NEVER CHANGES - ONLY THE REASON FOR OFFERING IT CHANGE

I owe the title of my paper to an old friend and colleague at Stanford, Harry Porter. Harry's discipline was the history of education which he approached with the skepticism of a scientist rather than the attitudes of the true believer. Like all such aphorisms, his is not completely accurate, and thus my title is an overstatement, but it is sufficiently accurate to be disquieting.

The best example of this generalization is the classical curriculum. At one point in time a learned person had to know Latin and Greek in order to have access to the main body of the literature in science, philisophy, and the arts of Western civilization. Knowledge of Latin was also essential in order to communicate with other scholars. This function died several hundred years ago, but the Oxford faculty voted just a few

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short years ago to continue the requirement that a student have both languages for admission, while Latin is still one of the more commonly taught languages in the United States. The rationale is now exactly the opposite of that which originally led to its introduction into the curriculum: from a vocational subject Latin has turned into a "cultural" subject. The U. S. Office of Education has made grants to upgrade the teaching of high school Latin whereas the funds would have been better spent trying to replace Latin. Greek is a good deal less popular, but even so I learned from a scientist who teaches at a private school offering a curriculum from kindergarten through the 12th grade that their students start Greek in the 7th grade. Rather than telling me this with shame, he actually seemed rather proud.

I assume that I do not have to cite the arguments to support the preceding judgments for this audience, though I am very willing to do so if pressed. My next step, however, involves moving the discussion from the classical languages to the humanities generally.

We hear a great deal today about the need for science to be more humanistic. My boss at the Foundation has made many statements to this effect. I hasten to add that I heartily agree, but I also have an important caveat. The mechanism for doing this, for orienting science and technology toward the achievement of important human goals and values, is not simply to emphasize more strongly humanistic courses in the precollege and undergraduate curricula. I define the humanities, by the way, to include foreign languages, rhetoric, literature, music, the arts, philosophy, and history.

There is a dramatic difference in the ways phenomena are viewed scientifically and humanistically. Take, for example, a rainbow. The pure humanist does not dissect, analyze, or measure. He enjoys or appreciates the totality of the experience. He may paint or photograph or describe the rainbow so that it can be enjoyed by others. The scientist analyzes and measures. He is interested in the determinants of the rainbow and in the possible manipulation of these determinants. He can in the future predict when rainbows will occur. He can also reproduce a

rainbow in the laboratory and change the hues in the laboratory rainbow at will.

A sick child may be viewed in equally divergent ways. The humanist describes the child's behavior in holistic terms; he empathizes with the child; he may weep; he may try to relieve the symptoms. The scientist will measure temperature, make blood counts, analyze the urine, take x-rays, etc. It is then possible in many cases to make a diagnosis and to prescribe treatment directed at the source of the difficulty so that the illness disappears.

It is obvious that one of the above points of view is not solely right and the other solely wrong. Both are legitimate; each has personal and social utility. The important thing is that they have different consequences and different functions, and utilize different techniques. The scientist may "lose" the rainbow or the child by his analyses and measurements, but the humanist loses the special kind of understanding which enables the scientist to predict and control. The pure scientist, whether physicist or physiologist, may lose the humanist view of phenomena

more frequently than the lighting engineer or the physician. The good physician above all must be humanistic as well as scientific. Somewhat belatedly we are recognizing similar needs for the engineer. Professional applied scientists of every type need both points of view, but it is not essential that the laboratory scientist, or the professional artist, have both. Education, which is an applied behavioral science, needs both viewpoints. A concentration on one to the exclusion of the other is dangerous for education.

The humanistic and scientific approaches to observation of a child in school who is seemingly happy, working hard, and learning are instructive. Today's humanist is likely to conclude that the teacher is using a democratic discovery method in her teaching, and thus the observations are the direct consequence of the method; or the nature of the child is such that the phenomena occur in spite of the absence of such methods; or that the behavior is quite superficial and that the child has really been stultified by the wrong methods. Any one of

these conclusions is made easy by the humanistic rejection of analysis and measurement. Rejection of measurement, it might be noted, is particularly attractive in that it makes any system invulnerable to disproof. The scientist, in contrast, when he asks why selected behavior occurs, analyzes teaching methods, curriculum content, and the background of experiences and abilities the child brings to the classroom. Furthermore, he will want to verify his own observations of the child's behavior, in part by means of objective tests, in part by means of other independent observers.

The judgment that needs of human societies cannot be met by humanistic studies alone can be summarized as follows: value judgments presumably derived from such studies are a necessary but not a sufficient condition for problem solution whether the problem involves the physical, biological, or social environment. Human problems require a technology based upon science just as much as physical problems.

There is another practical defect with humanistic studies. As offered in our high schools and colleges, they are far from being an

adequate arena for the discussion of values and for the development of values. How much opportunity for creativity, expression, and appreciation, as opposed to mastery of a subject matter, is allowed the student in most of his course work in the liberal arts? How many literature courses involve much if anything beyond memorizing facts about the author, his times and contemporaries, his antecedents, his successors, and their works? How much cultural relativity is acquired as a result of the two years of inadequate learning of a foreign language? In how many philosophy courses is there any emphasis on personal values of the student? How much of philosophy, to the contrary, is formal philosophy? History is somewhat more relevant, but many historians do their utmost to hide its relevance.

To demonstrate that I play no favorites, I add that the typical introductory courses in physical, biological, and behavioral sciences are taught in an equally formal fashion. The introductory course is usually designed for the future Ph.D. in the discipline, and not for the science needs of the general student. The best place to discuss science in

humanistic terms is in science courses, but we have often neglected to do so.

This discussion of humanism is designed to demonstrate that current emphases on the humanistic curriculum constitute a prime example of the title of my paper. We in this country inherited our undergraduate liberal arts curriculum from the British. Another old friend and colleague, Harold Cowley, Professor Emeritus of Higher Education at Stanford, has described the original purpose of this curriculum as follows: to transform the sons of the British landed gentry into gentlemen. For the time and place this was a functional objective. It also served in the early days of this country when a tiny fraction of our population attended college, though the function here was a little different: namely, to transform the sons of good families into clergymen.

In addition to the potential existing in the humanities for the discussion of values, I readily acknowledge another function: to improve the quality of life for those students interested and able to profit. I

shall return later to this topic in a discussion of continuing education. For a variety of reasons I suggest that this function is not best served by the present organization of secondary and higher education.

We have a second major educational tradition in this country stemming from Germany. This is, of course, graduate education and research. This tradition had a clearcut function when we had only a tiny proportion of our youth undertaking graduate work, but it, much more recently than the undergraduate liberal arts tradition, has been applied too broadly as well. The graduate schools by and large have perverted this tradition as the numbers of students have increased and the needs of society have expanded. We still need scholars and researchers of the very highest quality for which the Ph.D. is functional. We also badly need college teachers, in numbers far beyond those needed by any other country in the world, and today far beyond our own very recent needs. We need high level professional practitioners in many disciplines and in interdisciplinary fields. We need many more highly competent technologists in the physical, biological, and behavioral sciences. To produce these

persons through the route of the traditional Ph.D. is wasteful of scarce resources. It is also unkind, even cruel, to impose this model on young people, produce expectations for a research career, and then place them in positions for which Ph.D. training is not functional.

I applaud the developing interest among the graduate schools in the Doctor of Arts degree, though I deplore the dissertation requirement that is currently being imposed on this degree. I am sure that you in this audience will be sympathetic to one of my criticisms, i.e., we need more poor educational research the way we need holes in our heads. A more basic argument is that the function of the Ph.D. research exercise is borrowed from another tradition in which it is functional and is being transplanted to a new curriculum in which it has little function. Again, we see that the curriculum does not change, or changes very little; the reasons have changed. The dissertation does not prepare for research. Instead it supposedly develops desirable attitudes. In place of the dissertation I would recommend an internship.

I have also long criticized the dissertation requirement for the Ed.D. This is the weakest part of the doctorate in education just as it is the weakest part of the requirements for the D.A. For most of the students in education for whom the requirement is functional, the Ph.D. is also functional. For the many students in educational administration, however, I believe that the dissertation requirement has frequently had a profoundly negative effect on attitudes toward research and has created few researchers.

There is a third tradition in higher education in this country which represents the one major exception to my title. The land grant colleges devoted primarily to engineering, agriculture, and the military arts were a great American invention. Other professional schools such as commerce, education, journalism, and social work followed naturally. Note that this listing does not include the learned professions,as they are frequently called, of law and medicine which are more closely related to the other traditions. Much more than either of the other two, this tradition developed widespread popular support for higher education. For

more than 100 years, however, other members of the academic community have downgraded aggie schools until, with the decreasing numbers of persons involved in agriculture and the large amounts of money available for basic research, the faculties of the agriculture and engineering schools have all but knuckled under. For example, the Oregon Agricultural College that I knew as a boy is now the Oregon State University with, I am afraid, all that that name implies. Originally, these institutions admitted high school graduates who were not interested in becoming either gentlemen or researchers and produced graduates who were able to solve pressing problems of their society. Their curricula fitted a much wider range of individual differences among students and were directed toward a wider range of social goals than the institutions modeled on the British or German traditions.

In the years since World War II, the combination of these two older traditions, liberal arts and research, have probably changed the profession of engineering substantially and undesirably. It seems entirely possible to me that enrollments in engineering have been declining, relative

to enrollments in other disciplines, because the training requirements have changed. To be academically respectable in accordance with the one tradition, more and more liberal arts requirements have been introduced into the curriculum. To be academically respectable, in accordance with the other, more and more theory, more and more basic science, have also been introduced into the curriculum. I suspect that, as a result, engineering has less broad appeal than formerly and to a large extent now appeals to the same students who would otherwise be candidates for degrees in physics, chemistry, and the other physical sciences.

In general the achievement of academic respectability has frequently been dysfunctional. The liberal arts tradition stressed the whole man. Achievement across the board was deemed necessary. The highly verbal person adept in dealing with abstractions was rewarded. The graduate study and research tradition also rewarded persons high on the verbal intelligence dimension. Many curricula that are not basically verbal-intellectual were transformed into that mold. Thus art and music schools

have generally been more successful when not affiliated with a university because in the independent setting the curriculum could be functional. In the athletic domain, faculties have been more than a little schizophrenic, vigorously supporting academic standards verbally but approving curriculum changes that allowed their institutions to admit and retain athletes who were not very intellectual. Allowances have been made for athletes that have not been made for other areas of higher social need. There is not, for example, a very high intellectual content to high-level human relations skills, whether these skills are those required in selling or in leadership, yet we do not have appropriate curricula for these important functions.

The emphasis on across-the-board verbal, abstract achievement has been a liability in general education in which appreciation is frequently a primary goal. Even though colleges still have certification responsibility, it is quite clear to me that this ought not to extend to those courses required for the student's cultural benefit. Yet when the University of Illinois faculty voted to accept the pass-fail option in certain courses, course requirements in lower division foreign language and the general education area were explicitly exempted from the option. How many music,

art and science appreciation courses have been taught and graded primarily on the basis of intellectual content? We need to do more about the teaching of appreciations. We also need to be able to evaluate the growth of appreciations without imposing the same standards of content mastery expected of a specialist.

This is distinctly not a plea to abolish the grading system. I am convinced that without evaluation of performance and without competition there would be a lot less learning whether judged by student or faculty goals. There is clearly a lot of fuzzy-minded thinking about this issue. This does constitute a plea that evaluations reflect the educational goals desired. If professional-occupational certification were removed from the schools in accordance with the recommendation made by the Carnegie Commission on Higher Education, the schools would still need to evaluate performance of students, but performance evaluation might become more rational than it now is. It would also be desirable, to the extent that the change can be implemented on a mass scale, to shift from

evaluations based upon amount learned per unit of time to the time required to learn a unit amount to a criterion of satisfactory performance.

Neither is this a plea for less rigor. Rather it is a plea for relevant rigor. The training of a creative artist should be highly rigorous, but the rigor should not be introduced by way of a required science course.

It seems to me that we need another major curricular reform comparable in magnitude to the one introduced by legislation in the 1860's. Furthermore, I suggest that this reform should follow much more closely the American land grant college tradition than either the liberal arts tradition or the graduate research and scholarship tradition.

Of course the problems of today are very different from those of 100 years ago. The response of business and industry to increasing consumer demands spurred on by a fantastic growth in sheer numbers of people has all but destroyed our physical and biological environment. The concentration of people in the cities and the apparent breakdown of

the cities that we are currently witnessing have added social problems of great magnitude.

As these problems have grown, there has been another social trend of the utmost importance. Today, we are sending almost 100 percent of our youth to high school and awarding diplomas to approximately 80 percent. More than one-half of our population of college age goes on to postsecondary education and half of that half obtains a baccalaureate degree. These figures represent a dramatic increase in educational aspirations for this country over the last half century. The same figures also represent a substantial difference in educational aspirations between this country and any or all other countries in the world. Educational reform must not only look at social needs, but at individual differences in abilities, interests, and goals of our students. Furthermore, we must look at individual differences in the entire population and not merely in a small segment of it, that small segment that half a century ago finished high school or that small segment that went on to college.

I do not have time to describe in any detail my recommendations for curriculum change. In general, I support the recommendations of the Carnegie Commission with certain modest extensions. Their recommendations can be summarized as follows:

1. Reduce the time spent in undergraduate college education.
2. Provide more options (a) in lieu of formal college (b) to defer college attendance (c) to stop out from college temporarily (d) to change directions while in college.
3. Opportunities for postsecondary education should be available throughout the lifetime of every citizen.
4. New degrees should be greatly extended in their use.
5. There should be four generally accepted degree levels in place of the usual two.
6. The emphasis on certification through formal education should be reduced. Responsibility for certification should be placed on employers, state boards, and even the educational unit to which the student wishes to be admitted.

7. More career opportunities should be available to those who wish to return to or change a career late in life.

8. Work and study should be mixed throughout a lifetime.

There are a small number of additions to these recommendations that I would make. In the first place, I prefer to replace "formal college" in many statements of the Commission with the phrase "postsecondary education." The latter phrase is more neutral with respect to curriculum orientation. I would also like to see more qualitatively different options available to students within formal postsecondary education than are now available. Growth in undergraduate enrollments in recent years has been primarily in the liberal arts colleges or in the liberal arts curriculum of the universities. Student avoidance of existing professional schools such as engineering and agriculture does not mean that the liberal arts curriculum is satisfactory for all of the burgeoning numbers of students. New occupational or professional curricula are indicated, and modifications in existing curricula are also indicated.

Among the new curricula which should be given high priority are those designed to deal with the problems of the physical, biological, and social environment. Here the model of the agriculture college is particularly relevant. An applied research center or institute is not enough. In addition to problem-oriented research, the faculty should be responsible for the teaching of problem-oriented undergraduate and graduate courses. There should be acceptance of the social need and the applicability to the needs of students of occupational training at the associate of arts, the baccalaureate, and the master's and doctoral levels. Only a fraction of the graduate degrees should be research degrees. The rest should be degrees for various kinds of practitioners. Finally there should be acceptance of responsibility for extension services. In some institutions, colleges of agriculture are moving in these directions; in others, colleges of engineering; in some, new administrative units are being organized.

Please remember that I am not recommending the abolition of the liberal arts college, the traditional disciplines, or liberal arts education. Neither

am I recommending abolishing the Ph.D. degree or pure research. There is merit in all three educational traditions. No one or combination of any two should be allowed to dominate the educational scene. Each should be viewed for what it can and cannot do both in terms of the needs of the student and the social function to be served. We need to make decisions concerning how these traditions can be combined in an educational system without imposing all of the components of the system on each individual institution. We also need to make decisions concerning how these traditions can best be combined for the benefit of each individual student. Again, a single pattern should not be imposed on every student. For many students, work experience or occupational training should come early while cultural education should be deferred until greater intellectual, social, and emotional maturity is reached. Continuing education may be even more important for the cultural upgrading of the adult than for his advanced occupational training. But in order to make the most relevant kind of education available to individuals, whether students or working adults, we must set to work to create new options instead of offering only traditional fare under whatever new rationale.